



Harvard Medical Alumni Bulletin

December, 1967

HARVARD MEDICAL SCHOOL
ANNOUNCEMENT OF POSTGRADUATE COURSES SPRING 1968

March 18-29, 1968	OBSTETRICS AND GYNECOLOGY At the Boston Hospital for Women Under the direction of ROBERT W. KISTNER, M.D., AND JOHN FIGGIS JEWETT, M.D.	Fee \$255.00
April 19-20, 1968 (one-and-a-half days)	RECONSTRUCTIVE SURGERY IN CHRONIC ARTHRITIS At the Robert Breck Brigham Hospital Under the direction of THEODORE A. POTTER, M.D.	Fee \$65.00
May 6-10, 1968	ADOLESCENTS' MEDICAL CARE At the Children's Hospital Medical Center Under the direction of ROBERT P. MASLAND, JR., M.D.	Fee \$175.00
May 13-17, 1968	PEDIATRICS At the Massachusetts General Hospital Under the direction of NATHAN B. TALBOT, M.D., THOMAS C. PEEBLES, M.D., JOHN W. CRAWFORD, M.D., AND W. HARDY HENDREN, M.D.	Fee \$155.00
May 22-25, 1968	EMERGENCY TREATMENT OF SEVERE TRAUMA At the Massachusetts General Hospital Under the direction of PAUL S. RUSSELL, M.D., MELVIN J. GLIMCHER, M.D., HERMES C. GRILLO, M.D., AND EDWARD J. RISEBOROUGH, M.D.	Fee \$130.00
June 3-28, 1968	INTERNAL MEDICINE At the Massachusetts General Hospital Under the direction of ALEXANDER LEAF, M.D., AND DANIEL D. FEDERMAN, M.D.	Fee \$405.00
June 3-7, 1968	BASIC SCIENCE CONCEPTS IN THE MANAGEMENT OF CARDIOVASCULAR DISEASE At the Peter Bent Brigham Hospital Under the direction of ROE WELLS, M.D., AND RICHARD GORLIN, M.D.	Fee \$170.00
June 3-21, 1968	GENERAL SURGERY At the Massachusetts General Hospital Under the direction of PAUL S. RUSSELL, M.D., GLENN E. BEHRINGER, M.D., AND GEORGE L. NARDI, M.D.	Fee \$355.00

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The Department of Pathology

by Arthur T. Hertig '30

Shattuck Professor of Pathological Anatomy



An article about the Department of Pathology intended for alumni of this School must necessarily be brief but it should also be interesting. It may be many or only a few years since one studied pathology in Building D. One may have studied it under the late Professors Councilman and Wolbach or during my own stewardship. Only a very few alumni now living could have studied under Reginald Heber Fitz, the second Shattuck Professor of Pathological Anatomy (1879-1892), although many have reason to be grateful to him, both as physicians and even as patients, for his elucidation of the mechanisms of acute appendicitis. In those happy, carefree days of yore, when there was no soft money, professors of pathology could even be part-time deans. James Barnard Swett Jackson, the first Shattuck Professor (1847-1879), was also Dean from 1853-1855. David Edsall became the first full-time Dean in 1924.

Pathologists—about 2 to 3 per cent of the alumni are pathologists so need not read these lines—have classically been regarded as a mixture of basic scientist and clinical practitioner with a smattering of the teacher thrown in. They have sometimes been referred to as “the doctor’s doctor” because the pathology laboratory—usually in the darkest part of the basement or at least in the oldest and grubbiest part of the hospital—dispensed vital quantitative and qualita-

tive information that the clinician needed to practice medicine. The pathologist still dispenses such vital information, now often from well built, well equipped laboratories located above the basement level and in a desirable part of the hospital. Practicing pathologists may even be well paid for their clinical duties as key members of hospital staffs.

But what has all this to do with the Department of Pathology at Harvard? Various changes have come about in the philosophy, organization and functions of this department during the past twenty years. S. Burt Wolbach, revered by students and staff alike (some of you wore red carnations to class out of respect to him as a teacher since he always wore such a flower), retired in 1947 from the chair and chairmanship of pathology. His last public address was given before the Alumni Association on May 28, 1952, and was published in the June, 1954 issue of the *Bulletin*. He was assigned the title, “The Glorious Past, The Doleful Present and The Uncertain Future of Pathology” by Merrill Sosman, then in charge of the Alumni program. Sosman was radiologist to the Peter Bent Brigham, a great wit, a superb needler, and a long time friend and friendly antagonist of Wolbach’s. The “Chief,” as all of Wolbach’s staff called him, emphasized that the science of pathology was in poor shape but the practice of pathology was healthy. He stressed that all disciplines con-

tribute to the study of disease—a fair description of the field of pathology—and that the pathologist of the future must use all of the basic medical sciences but particularly biochemistry if advances were to be made in the science of pathology. In a very large sense his predictions have come true. Let us look briefly at Harvard's Department of Pathology and see how well we are doing in making it a well rounded one; devoted to the triad of teaching, basic research and care of the patient ("service pathology").

Following the low period, 1947–1950, when a committee of six professors ran the department ("a camel looks like an animal put together by a committee"), Dean Berry asked me, on five days notice, if I would run the department. That was in June, 1950, and the time at which the Korean war started. There was then only one full-time member of the staff in residence, a part-time secretary, and one technician working for a hospital pathologist. There followed a two year *pro tempore* chairmanship succeeded by my appointment as professor and chairman. The ad hoc committee relieved me of any formal hospital responsibility. The twin functions of basic research in the mechanisms of disease, and the organization of second year teaching, remained within the department.

Considering the limitations of space and hard money budget, then and now, the new plan has worked reasonably well. There are now twelve full-time members of the department who are in residence within the Quadrangle. There are three with tenure, six assistant professors, one associate and

two research associates. Three staff members, Cotran, Craighead, and Gill, have some clinical duties elsewhere but they consider themselves as "belonging" to the quadrangular area. The research interests of those based at the School range widely and all have to do with basic mechanisms of diseases except mine, which concern the ultrastructure of human oocytes in their various stages of development. See pages 4–5, Figs. I, II. (I have always been part pathologist, obstetrician, embryologist and anatomist.)

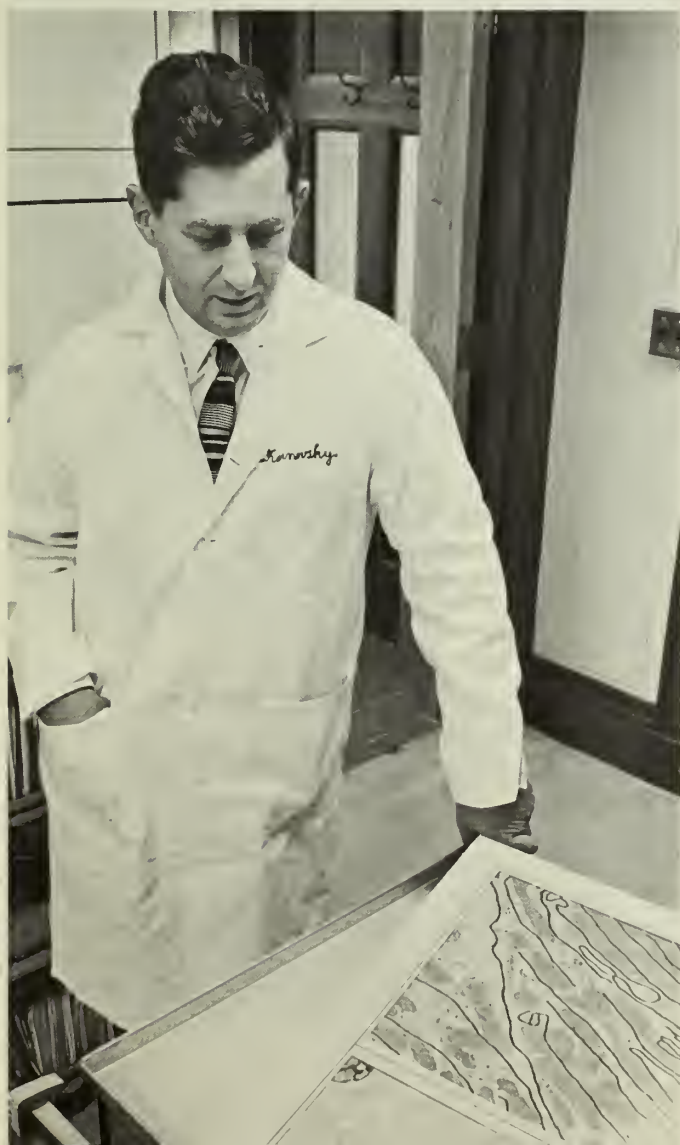
The mere listing below does not do justice to the staff's collective basic knowledge, productive scholarship and devotion to academic pathology:

ASSOCIATE PROFESSORS:

Guido Majno is writing a book on the history of wounds and inflammation while continuing his studies on why blood vessels leak within inflamed tissues. These studies have led to new concepts on the mechanism of histamine-induced leakage.

Morris J. Karnovsky develops methods of cytochemistry at the ultrastructural level to elucidate the mechanisms of transport through the normal vascular endothelium. Substances slip through between the cells, thus confirming the morphological equivalent to the physiological pores postulated by John R. Pappenheimer, Visiting Professor of Physiology.

Dr. Karnovsky



Dr. Majno



ASSISTANT PROFESSORS:

Ramzi S. Cotran studies the ultrastructure of endothelium and mesothelium in their response to injury. His research on experimental pyelonephritis ties in well with his teaching in the kidney block of pathophysiology.

John E. Craighead investigates the pathogenesis and pathology of virus disease and has discovered some of the mechanisms by which viruses invade and grow in their host.

Hazel M. Gore, pathologist to the New England Trophoblastic Disease Center (one of the two thus far established in this country), correlates the clinical and morphologic aspects of trophoblastic lesions.

Thomas J. Gill 3d '57, has investigated most successfully the antigenicity of synthetic polypeptides in order to elucidate the sites and mechanism of antibody formation.

Earl E. Hellerstein, predominantly interested in teaching and methods thereof, also does research in nutritional pathology. His teaching research will lead the way for fruitful use of computers in the teaching of pathology.

Stephen M. Shea, a pathologist but also a gifted mathematician using stochastic methods ("skillful in aiming, proceeding by guesswork" according to Webster) has come to understand the cell populations in the regenerating lobule of the experimental cirrhotic liver.

ASSOCIATES:

George T. Diamandopoulos' work on viral carcinogenesis (simian virus 40) has shown that: a) the type of SV-40-produced neoplasm (carcinoma or sarcoma) depends on the type of target cell acted upon and is not related to the change of SV-40 properties and b) there is a dichotomy between the development of oncogenic properties in a given cell under the influence of SV-40 and the acquisition of virus-relation cellular antigens ("T" and "S").

RESEARCH ASSOCIATES:

Eleanor C. Adams, working with me, has elucidated for the first time the ultrastructure of the primordial human oocyte at the ultrastructural level and correlated its fine structure with proliferative and secretory phases of the menstrual cycle.

Tien-Wen Tao Wiedmann (our second Ph.D. in experimental pathology) is investigating the primary immune response and immunoglobulin production by lymph nodes grown in organ culture. Her work for her doctoral thesis resulted in the elucidation of the origin of human syncytiotrophoblast from cytotrophoblast of immature human placental tissue cultivated in organ culture.

We have acquired more room by interflooring the space between the old floors of D-II so there are now five instead of three floors. Bacteriology acquired one new floor and pathology the other. On our floor, we have the tissue culture and virus laboratory, headed by Dr. Craighead, Dr. Majno's office and laboratories, and two of our four electron microscopes. Various renovations have occurred on the third floor of D-I, but the space on the first floor remains in its pristine archaic state. This is largely occupied by Dr. Dammin's group from the Peter Bent Brigham Hospital and is designated as the Laboratory of Chemical Pathology, headed by Dr. Gill. Studies on organ

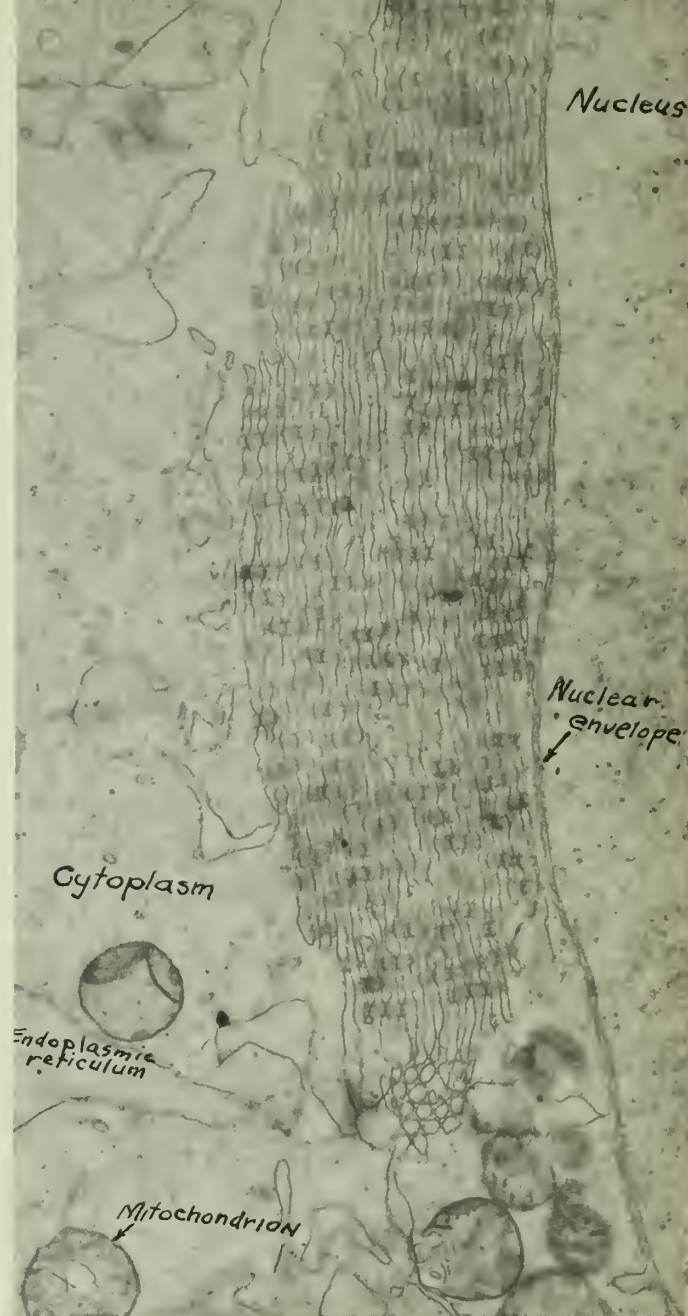
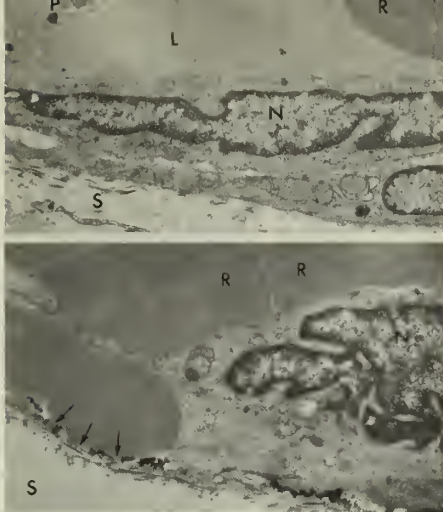


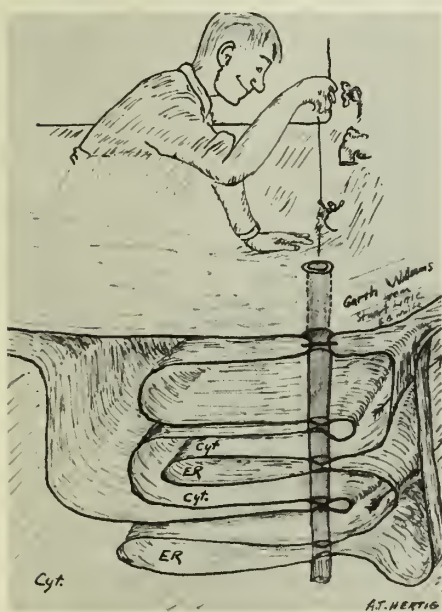
Fig. 1. The annulate lamellae from a primordial human oocyte. The nucleus is to the right and the cytoplasm to the left. This complicated stack of interdigitating membranes is derived from the outer leaflet of the nuclear envelope; its aligned pores or annulae being similar to those of the nucleus and with which they are sometimes in register. A crude drawing (Fig. II) by the author indicates his three-dimensional concept of this complicated structure. It may well have something to do with transfer of materials from the nucleus to the cytoplasm. Micrograph by Eleanor C. Adams $\times 22000$, H-35, oocyte No. 4.

transplantation and antibody formation by synthetic polypeptides are carried on in these quarters. Plans are being formulated for renovating that space.

In order for alumni to appreciate what has happened during the past fifteen years it will be necessary to give a brief resumé of how the department is organized. In 1965-1966 it consisted of 175 members who had Corporation appointments all channeled through the departmental office at HMS. They are divided among that portion of the department within the Quadrangle and those laboratories of pathology in the teaching hospitals. The latter number eight and consist of the Beth Israel, Boston City, Boston Hospital for Women (the



New electron microscopic evidence for a dynamic event—the mechanism whereby histamine causes small venules to leak. Compare the nuclei (N) of two endothelial cells: normal (above) and six minutes after histamine (below). The latter appears compressed and contorted; this suggests that the cell has contracted. In fact, it has become separated from its neighbor (arrows point to the gap). This suggests that histamine causes venules to leak by inducing a contraction of their endothelial cells—which are, incidentally, quite close biologically to smooth muscle cells (L = lumen; P = platelet; R = red blood cells; S = extravascular space). Micrograph by Guido Majno, Fig. II (below). A mixture of fact and fancy. Stewart Little, a mouse and sibling of the Little family endowed with human attributes, is being lowered by the author into a nuclear pore so that he may explore the annulate lamellae and bring back some data on its structure and function. Cyt. = cytoplasm, ER = endoplasmic reticulum. Note that this complicated stack of membranes actually lies within the cytoplasm although still having attachments to the outer nuclear leaflet and to the endoplasmic reticulum. Mechanically, if in no other way, this membrane system should facilitate nucleocytoplasmic transfer.



old Boston Lying-in and Free Hospital for Women, which are still physically separated), Children's, Massachusetts General, New England Deaconess, Peter Bent Brigham and Robert B. Brigham hospitals. All laboratories are in the charge of full professors except the newest affiliation, the Robert B. Brigham, whose pathologist, Peter Kulka, is an associate professor. All of these hospitals have, as chiefs, experts in the triad of academic medicine, teaching, research, and skillful diagnosis. It is fair to say that every aspect of pathology has an expert represented within the total departmental personnel. For simplicity, the hospitals are listed alphabetically with their pathologists' specific field(s) of interest.

BETH ISRAEL HOSPITAL: **David G. Freiman**, cardiovascular pathology.

BOSTON CITY HOSPITAL: Harvard is represented in this complicated tri-school institution by **Ramzi S. Cotran**, who is skilled in the ultrastructure of endothelium and mesothelium in its response to injury.

BOSTON HOSPITAL for WOMEN: **John M. Craig '41**, pediatric, newborn and female pathology.

CHILDREN'S HOSPITAL: **Sidney Farber '27**, world famous as a pediatric pathologist and discoverer of chemotherapeutic agents leading to the successful treatment of leukemia and trophoblastic disease. He also founded and heads the Children's Cancer Research Foundation, affectionately known as "The Jimmy Fund Building," where basic research in cancer chemotherapy is pursued.

MASSACHUSETTS GENERAL HOSPITAL: **Benjamin Castleman**, distinguished endocrine pathologist.

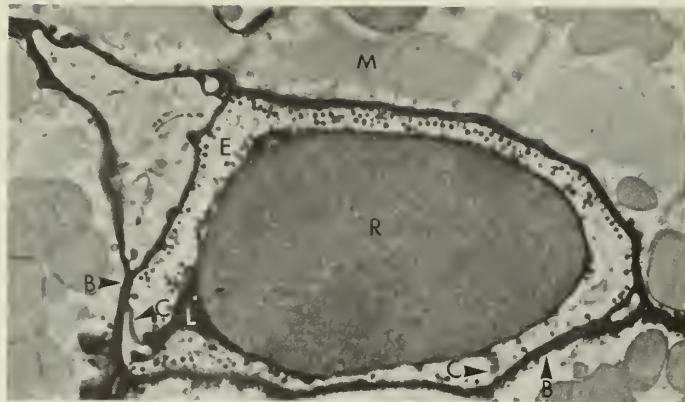
NEW ENGLAND DEACONESS HOSPITAL: **William A. Meissner**, one of the world's outstanding surgical pathologists and an expert on the disease of the thyroid gland. Associated with the hospital is The Cancer Research Institute, founded by Shields Warren '23, professor of pathology, emeritus.

PETER BENT BRIGHAM HOSPITAL: **Gustave J. Dammin**, pathology of infectious diseases and of tissue and organ transplantation.

ROBERT B. BRIGHAM HOSPITAL: **Peter J. Kulka**, internationally recognized for his research on the pathology of rheumatic diseases.

This brief tabulation does an injustice to the activities of those laboratories and their respective staffs. The activities of any one of them might well warrant a separate article. Suffice it to say that all of these professors and their staffs devote a significant proportion of their time to diagnostic pathology (between 10 and 70 per cent at the Massachusetts General) and the remainder to teaching and research. All of these hospital laboratories have significant budgets of hospital and extra-hospital origin. Thus the General has an intrinsic budget of about \$500,000 and another half million of research grant support. Its staff produces 50 to 60 papers a year. At the latest report, they have 16 staff and 26 trainees. Other teaching hospitals have commensurate hard and soft money budgets in keeping with their size, staff and research interests. The combined annual bibliography of all the departmental members is truly staggering.

Although one regards the teaching of pathology as taking place in the Quadrangle, an enormous amount of it is also done in the hospitals during the students' third and fourth years. This is not only proper but should increase, for clinical medicine is still a correlation of form and function, whether at the gross, microscopic (light and/or electron) or molecular levels. The pathologist, of all medical specialists, has the philosophic as well as practical concern for correlating altered form and altered function. Some who were recent students have heard me



An electron micrograph of a capillary in the heart of a mouse. The mouse was injected intravenously with peroxidase a few minutes before it was sacrificed. The sites to which the enzyme has travelled are demonstrated in the electron microscope by a cytochemical technique. Such sites appear jet-black in the micrograph. The peroxidase is present in the lumens (L) of the capillary, around the red blood cell (R). It is passing through the intercellular clefts (C) between adjacent endothelial cells to the extravascular spaces and has filled the basement membranes (B) of the capillary and of the muscle (M). Small vesicles in the cytoplasm of the endothelial cells (E) also contain peroxidase, and these probably also are involved in transendothelial transport. Micrograph by Dr. Morris Karnovsky $\times 20,000$.

mention in lectures that to fail to correlate form and function is equivalent to taking an automobile trip without an automobile.

And what of the activities of that portion of the department quartered in the Quadrangle—activities confined largely to teaching and research? The latter has already been touched upon. Let us now consider teaching, for in spite of all the money, publicity, and pressure associated with research, a medical school necessarily is concerned with teaching students the basis for scientific medicine. Even at Harvard it is realized that most of its graduates see sick patients and hope to make them well. (McGeorge Bundy, while still Dean of the Faculty at Harvard College, once told me that when a student decided to enter medical school he had either bought or been sold a bill of goods which precluded his becoming a scholar. To which I should have replied that this may well be so, but scholarship is a rare quality, even among Ph.D.'s.) The author's philosophy is that medicine and pathology have many facets all built around the sick patient. Some doctors hope to contribute to knowledge of basic disease mechanisms and have the necessary temperament and curiosity to do so, but most doctors are content to understand basic mechanisms and apply them to the cure of their patients. Hence we need not feel badly that McGeorge Bundy thinks we are not, as a group, scholars. We are scholars in the art of helping sick patients but perhaps not scholars in the sense in which he used the term.

At this point tribute should be paid to the many hospital pathologists who teach at the Quadrangle during the first semester course in general pathology, as well as in the second semester multidisciplinary course entitled pathophysiology. (Pathology contributes one-half the faculty to that important course.) I am personally and officially grateful to them, for without their help, largely uncompensated, there could not be the effective class room teaching available to our second year students.

The course in pathophysiology is now about ten years old. It began under the paternal guidance of Edward H. Kass,

associate professor of bacteriology and immunology, clinician, microbiologist and pathologist. He was ably succeeded for two years by Albert Renold cre he returned to his native Switzerland. It is now in charge of that master of coordination, David G. Freiman, pathologist of the Beth Israel Hospital. This course, of about eighteen weeks, gives the students basic mechanisms of disease in eight organ system categories. It incorporates the old special or organ pathology prior to ten years ago. It is hard and fatiguing to the students (I liken it to one tired, defensive platoon beset by eight fresh offensive platoons), but a good exercise in modern pedagogy. This course for medical students arose directly out of the educational experiments started during the administration of former Dean Berry and culminated in the magnificently integrated course (201AB) organized by the Division of Medical Sciences under the able and wise leadership of Eric G. Ball, professor of biological chemistry and chairman of the Division.

The Department of Pathology in the Quadrangle is fortunate in having secured two of its most successful academic pathologists—Guido Majno and Morris Karnovsky—for and from that course. The scholarship and basic science background of these two men made them acceptable to the representatives of the other five basic science departments. The six representatives thus devoted essentially their full time to tutoring a relative handful of Ph.D. candidates—about 18 to 20 as a maximum. This was basic medical science teaching at its best. (Sixteen of our own medical students came under its spell over a three-year period and all did well in their subsequent careers.) It is of great satisfaction to me that these two teachers, Majno and Karnovsky, have attained tenure rank. In the past the department has had few with tenure position but now there are seven; three at the School and four in the various hospitals.

The statistics above point up one of the fundamental problems facing academic pathology. Harvard is one of the few universities in the country that has an "academic department" devoted to general pathology as well as eight outstanding well rounded hospital departments within teaching hospitals. Support is relatively easy for tenure positions in hospitals as compared to those in "academic departments." Nevertheless it will only be through the bolstering of hard money resources for pathology at this School that the department, within the School proper, will compete on equal scholarly terms with the other basic science departments. Admittedly, pathology belongs in both the School and the hospitals. Unless, however, interested and perceptive people, including alumni, realize that the Department of Pathology in the Quadrangle must be a full complete department, and those in the hospitals be together another full complete department, the science of pathology upon which we all depend will continue to suffer at the expense of applied pathology.



The homely horseradish which yields the enzyme used in tracer studies at the ultra-structural level for chasing proteins around the body, as in picture above.

—from studies of Albert Renold, 1946
HORSERADISH



The Dollar Gap in Medical Education

by Bayley F. Mason

IN his final report to the Harvard Board of Overseers on January 13, 1953, President Conant expressed hopes that industry and private philanthropy would provide an "answer to the serious deterioration in medical education," namely, the trend toward "substituting part-time professors for full-time men in the clinical departments." Mr. Conant warned that the alternative would be "a permanent federal subsidy with all the difficulties and problems that such a subsidy would bring."¹

Less than a decade later, Mr. Conant's successor again felt obliged to point to the pressing needs of medical education at Harvard and elsewhere. The financial crisis that the Medical School had faced in 1948 (when the Corporation required the Dean to cut the budget 10 per cent), had subsided by 1958, not because of a sudden flow of private funds, but because of the very influx of federal funds that President Conant had reluctantly anticipated.

The rapid emergence of the federal government as the primary benefactor of medical schools has had a profound financial and academic impact on American medical education. Some educators have compared federal aid with the vast outlays of the Rockefeller General Education Board to medical schools following the Flexner Report. Aside from the overwhelming magnitude of federal appropriations versus those of the General Education Board, one also finds that, whereas the General Education Board funds made possible what medical educators wanted, federal funds have made possible what Congress wanted. And therein lie the seeds of a new crisis of affluent poverty.

Table I Harvard Medical School
Total Income Availed of and Income Availed of
from Government Sources

Fiscal Year	Total Income Availed of	Income Availed of from Government Sources	Government Ratio
1949-50	\$ 3,133,787	\$ 729,219	23.3%
1954-55	4,879,128	1,481,350	30.4%
1959-60	10,747,647	5,300,597	49.3%
1961-62	14,881,322	9,218,911	62.1%
1963-64	19,192,227	12,669,300	66.1%
1964-65	20,974,913	13,934,012	66.4%
1965-66	22,878,728	15,416,114	67.4%
1966-67	24,719,040	17,051,236	68.1%

Tables I and II source: Reports of the Dean of the Faculty of Medicine to the President of Harvard University.

Table II Harvard Medical School
Expenditures for Operating, Teaching and Research
(In millions of dollars)

Fiscal Year	A Faculty & Staff Salaries	B Research from Outside Sources	C* Total Operating Teaching & Research
1959-60	\$3.4	\$ 6.3	\$10.8
1960-61	3.8	7.0	12.6
1961-62	4.3	8.9	14.9
1962-63	4.9	10.4	17.6
1963-64	5.3	11.5	19.2
1964-65	5.9	12.5	21.0
1965-66	6.5	13.2	22.9
1966-67	7.2	14.2	24.7

* Column C includes A & B plus expenses not indicated herein.

Postwar Federal Research

The current problems of developing sound programs for financing medical education are deeply rooted in the geometric rise in both governmental and private expenditures for medical research since World War II. The scientific revolution, as former Dean George Packer Berry has said, was "largely self-generated. . ."² But, as he and other educators have pointed out, "Adding to the pressure to expand research has been the public clamor for solutions to the riddles of disease."³ Congress responded to insistent public demands by voting ever increasing amounts for medical research, much of which has been granted to investigators in the nation's 104 accredited medical schools.

As recently as 1950, the estimated total of private and public spending for medical research was \$55 million. By 1960, it had reached \$392 million.⁴ In 1965, "total national expenditures for health research had reached \$1.5 billion."⁵ Of this amount, the federal government provided approximately \$1 billion. In 1940, the government provided only \$3 million of an estimated \$45 million, or 7 per cent v. 66 per cent of the 1965 national health research expenditures.⁶

After 1945, the federal government turned to university medical schools—especially the recognized leaders—for medical research, much as it had turned to the universities such as Chicago, MIT, Cal. Tech. and Harvard in 1941, for research in the physical sciences.

There was never much doubt that universities would accept federal research grants. Although some cynics claimed

that campus empire builders would accept dollars for anything, then complain later about their political patron, the more realistic commentators echoed the views of Princeton's President Goheen:

No one can deny that the advancement of knowledge in these (scientific) areas is of pressing national importance, and certainly no one has yet been able to demonstrate that private sources can meet these needs on the scale which the present and the future require.⁷

The effect of federal funds on higher education was examined in detail by self-studies undertaken in 1961-62 by 23 colleges and universities under the auspices of the Carnegie Foundation for the Advancement of Teaching.⁸ (The data used was primarily 1959-60). Of these 23 colleges and universities, 10 had medical schools; and of these 10, six had the highest percentage of their federal funds allocated to medicine. Harvard, for example, in 1959-60 received \$11.8 million in federal research grants, of which 54.2 per cent was earmarked for the medical area.⁹ Thus, by 1960, medicine had replaced nuclear physics on many campuses as the major benefactor of federal research grants.

The pursuit of excellence has always tended to be expensive, but in medical education its pursuit tends to be prohibitive. More than one major private university in the past decade has shunned proposals to start new medical schools—even two-year schools. The prospect of ample

federal funds has not offset the requirement for matching grants for construction and supplementary overhead. Those universities that have medical schools, or wish to establish them, must wrestle with the problem of maintaining some kind of independent relationship with the federal agencies (the National Institutes of Health in particular) and with trying to raise counterbalancing private capital that is both required by law and desired by university governing boards.

Harvard Expenditures

One dimension of the problem, measured in dollars alone, is shown in Table I using Harvard as a case study. To give some focus to research expenditures, whether funded from public or private sources, Table II shows a breakdown of expenses for operating, teaching and research over a six-year span, with emphasis on research sponsored by outside sources (Column B).

National Financial Trends

Harvard's recent financial trend of rising expenditures, largely based on federal government sponsored research, is paralleled at most medical schools. The Association of

American Medical Colleges in conjunction with the Council of Medical Education of the American Medical Association since 1959 has prepared comparative data on national trends in financing medical education.

Table III presents the combined operational cost and income data of all U.S. medical schools. (Capital outlay or teaching hospital financial data are not included.)

Sponsored v. Operating Programs

Sponsored programs are defined by the AAMC and the AMA as medical school activities fostered and supported by extramural grants according to terms specified by the grantor. Regular operating program expenditures are made from funds under the complete control of the medical school (or parent university).

The proportional growth of "sponsored programs" has been exponential. In 1940-41, 77 medical schools spent \$32.1 million of which \$4 million (15%) was in sponsored programs. By 1964-65, sponsored programs constituted \$459 million (59 per cent) of the \$779 million expended by 87 medical schools. In fact, federal funds comprised 54 per cent of total medical school expenditures in 1964-65, compared with 30 per cent in 1958-59.

Table III Summary of Medical Schools' Financial Reports, 1958-66

Selected Sources of Support	1958-59	1962-63	1963-64	1964-65	1965-66
A. For Sponsored Programs					
1. Federal contracts, grants for teaching, training and research	94,900,339 (85*)	276,737,370 (87)	334,567,828 (87)	378,264,152 (87)	418,131,600 (86)
2. Non-federal contracts, gifts, training grants, programs and research	49,337,577 (85)	70,351,102 (87)	74,960,378 (87)	80,771,157 (87)	96,074,714 (86)
Total expenditures for Sponsored Programs	144,237,916	347,088,472	409,528,206	459,035,309	514,206,314
B. For Regular Operating Programs					
1. Tuition and fees	24,368,278 (85)	32,280,565 (87)	35,427,465 (87)	38,621,106 (87)	41,019,126 (87)
2. Overhead	13,339,212 (85)	34,826,293 (87)	44,406,273 (87)	49,146,410 (87)	58,845,358 (86)
3. Endowment income	17,576,918 (52)	19,968,072 (52)	21,970,267 (52)	23,149,364 (52)	26,227,239 (52)
4. Teaching hospital payments	13,727,308 (28)	20,016,140 (32)	22,541,131 (31)	25,956,625 (31)	31,047,912 (33)
5. State appropriations	49,778,410 (40)	69,507,474 (42)	74,554,188 (43)	96,539,423 (41)	111,985,457 (43)
6. Unrestricted gifts and grants	10,960,387 (85)	11,773,936 (87)	10,938,442 (85)	12,122,355 (83)	13,771,283 (85)
7. Other	45,040,222 (85)	67,723,163 (87)	76,319,932 (87)	74,129,704 (87)	85,081,473 (86)
Total expenditures for Regular Operating Programs	174,790,735	256,095,643	286,157,698	319,664,987	367,977,848
TOTAL EXPENDITURES	319,028,651	603,184,115	695,685,904	778,700,296	882,184,162

Sources: JAMA, 194:760, 1965; JAMA, 198:870, 1966; JAMA, 202:725, 1967.
(85*) = Number of Schools Reporting

The spread of sponsored programs, as one might expect, is uneven. In 1964-65, 12 of the 87 schools spent under \$2 million on sponsored programs; whereas 23 spent between \$6 and \$15 million.¹⁰

Funds for regular operating programs are lagging in growth for several reasons. Increases in tuition at most schools have been moderate per student and moderate in the aggregate because of slow increase in total numbers of students. State governments have tended to provide more support for sponsored programs and less for basic operations. Endowment income as a percentage of total income has fallen to one-fifth of what it was in 1900.¹¹ After a five-year period of no net gain in unrestricted gifts or grants, it is significant that there was almost a 10 per cent increase in 1964-65.

In the opinion of economist Seymour Harris, tuition as a source of income has not been sufficiently exploited. Professor Harris believes that about \$12 million could be added to the income of medical schools (base year 1959-60) if tuition was increased from an average of \$800 to \$1,400, assuming, of course, a requisite increase in scholarships and loans for the truly needy.¹² Professor Harris's views are not shared by many educators. Most are now worried about debts forcing many students into high paying career choices, and many private school deans fear that higher tuitions might lessen their competitive advantage with state-supported schools.

The AAMC, in a 1967 policy statement, called for a more flexible government approach. Instead of dealing separately with the areas of education, research, and medical care, federal projects should attempt broader support of the academic medical center as a whole, the AAMC declared. Sponsored programs for education and research "should allow for overlapping use of these resources within the academic medical center, to the extent that the fulfillment of the primary purpose allows." In addition, the statement stressed the need for increasing "basic institutional support grants . . . to support the full range of educational programs of the academic medical center." The present separation of teaching, research, and clinical service, the AAMC added, not only hinders the medical center financially but "is not in the best national interest because it decreases the advantages of interaction among these interdependent groups."¹³

Future Needs

Before analyzing some of the financial relations between the schools and the government—which have intense political overtones—one might examine some of the projections of future financial needs of medical education, and how they might reasonably be met.

In 1962, the Council on Medical Education extrapolated the Bane report projections on the requirements for more graduates, and developed estimated construction costs to provide for 12,000 students entering in 1971. Their figures indicated a need for \$1,162,000,000 in construction funds of which \$644,000,000 would be applied to new schools and associated teaching hospitals, the remainder to existing schools. The Council also estimated an additional annual operating cost need of \$140 million.

The Health Professions Assistance Act of 1963 authorized grants for construction of medical schools and "other health educational schools." President Johnson, in his special message of January 7, 1965, said these funds "will help meet this problem." However, the President added that the government had requests from 90 medical and dental schools for \$274 million in federal aid, whereas only \$100 million was authorized for expenditure in 1965.¹⁴ For the next three years (Fiscal 1967-69) \$480 million will be authorized for federal grants for construction repair and replacement of medical and health related schools. A four-year grant under PL 89-105 also provides \$200 million for operating costs to help improve teaching staffs and curricula—the first time federal funds will be available for operating expenses.

The gap between federal funds and medical school needs, however, is substantial. Building costs, moreover, have risen at a rate of about 6 to 8 per cent a year, and these were not included in the projections.

Private Philanthropy

To date the spokesmen for the government have taken a firm position that it cannot and should not provide all the resources. John Gardner, Secretary of Health, Education and Welfare, said in an interview with *Medical World News* shortly after his appointment:

. . . the federal government might try to do it all. But this is a gravely defective solution from the standpoint of the future vitality of our country.¹⁵

Mr. Gardner was President of the Carnegie Corporation which has refused as a matter of policy to provide funds for construction or endowment, or general support of medical schools. Mr. Gardner in his new post, however, has taken a position not shared by his former Carnegie trustees or by many of the nation's largest foundations.

In 1962, the President of the Rockefeller Foundation, J. George Harrar, reviewed his foundation's programs over its first half-century. He paid proper tribute to the fact that "The Rockefeller Foundation and its sister organization, the General Education Board, were the principal investors in medical schools here and abroad in an attempt to improve the quality of medical education and, ultimately, of the medical care afforded society." Noting the "channeling of vastly increased public funds into these areas of human welfare," Dr. Harrar said the Foundation "consequently increased its work abroad." Summarizing the Rockefeller Foundation's policy, he stated:

Specifically, the Foundation does not now regularly contribute to the general support of medical education or to research in the medical, natural, biological, and agricultural sciences in the United States for the reason that other resources available in these areas are entirely adequate to the need. However, the Foundation retains the option of assisting research and related enterprises in the sciences which offer exciting possibilities for future results of important social benefit, in those instances when support from other sources is not readily at hand.¹⁷

Some medical educators have vigorously criticized the suggestion that "other resources" are "adequate to the need." Others have been more temperate either in order not to create ill will, or because they recognize that foundations do have limited resources and unlimited opportunities to help society. Mr. Harrar, for example, pointed out in his 1966 address to the Council on Foundations that to him there is an "entirely unjustified contention that government should now take over all aspects of social welfare" yet he sees foundations faced with "an embarrassment of plenty in both the dimensions and the number of challenges before us." Foundations have been accused by some medical deans of abdicating their responsibilities to the government; if there has been an abdication, it usually has been involuntary or, at least, reluctantly undertaken.

Jack R. Ewalt, Bullard Professor of Psychiatry at the Harvard Medical School and Superintendent of the Massachusetts Mental Health Center, at a Chicago conference on mental health on December 14, 1965, said:

I do regret that such great foundations as the Rockefeller Foundation and the Ford Foundation have withdrawn from major interest in the mental health fields, as manifested by financial support. The mental health movement is too dependent on public funds, and likely to remain so.

I hope we may be able to maintain a reasonable balance between private and public support for our mental health planning, consultation and research efforts as well as for the operations of the service institutions."¹⁸

The task of enlisting private support is made the more difficult by the natural desire of major foundations to pioneer. Henry T. Heald, former President of the Ford Foundation, in his final report said that private foundations should "provide the cutting edge for social advances" and not merely supplement on-going governmental programs. He added, "It is inappropriate to pick leftovers off the government table."¹⁹ The "cutting edge" of foundations has been significant and has unquestionably led the way to the government's interest in medical project research and now in broad-spectrum education. However, as long as the government insists upon providing much of its funds as matching grants, private philanthropy may have to pick up a few "left-overs," as it were. The Foundation Library Center has begun a study of the relatively new problem of foundations being asked to match federal grants. Since foundations view themselves as innovators not followers, some may find this antithetical to their basic precepts. An informal survey conducted in the Fall of 1966, by the Center, however, revealed no major trend toward resisting matching federal grants. Most of the foundation executives polled indicated that for the moment they would view each project as it came, and treat the government no differently from other jointly funded ventures. One corporate foundation head objected strenuously.²⁰

The Ford Foundation, except for extensive grants for population control, stopped general support of medical education several years ago. In March of 1967, Mr. McGeorge Bundy, president of the Foundation, stated that Ford also intended to curtail sharply grants to all other forms of higher education. First to be hurt were the Woodrow Wilson

scholarships. The Foundation, which had in previous years provided 95% of the Wilson funds, reduced its contribution to \$2.4 million over a three year period—an 85% cutback. The last major Ford grant for education was \$35 million to Columbia University in 1966. Said Mr. Bundy, "After Columbia, what? We do not know. We know that the program [of Ford's aid to education] cannot continue at its past level."

For those who believe in a pluralistic society in which medical education will have some kind of a balance of private and public funds the outlook is not bright. The fund-raising campaigns of major medical centers in recent years have succeeded admirably in the area of providing hospital care—the local communities usually met their responsibilities. Few medical centers have yet attempted extensive appeals for faculty support, and those that have have found the task immense and far more time consuming than regular college campaigns. The Harvard Medical School, in conjunction with its Teaching Hospitals, undertook from 1956–65 to raise \$58 million for Faculty endowment (of which \$8 million was earmarked for the Countway Library). This School alone will have to maintain an annual increase of about \$5 million in new private capital to meet its commitments. Multiply Harvard's needs throughout the country and the demand on private philanthropy is formidable indeed.

Ford's Mr. Bundy is optimistic that the private sector can do the job:

I believe that the modern American rich have only begun to do what they could and should for higher education. The average "generous" alumnus is sharing only a small fraction of his wealth with any college. Nor should he forget that most of the cost of this generosity is now borne by the government, through the tax deductions it permits.

Gifts have multiplied three-and-a-half times in the last 15 years, but they should be five times what they are. There is a special obligation and opportunity open to those hundreds of Americans who have built large new fortunes in the last generation—as well as to those who have had their money longer. The American rich—old and new—are missing a lot of excitement by their relatively slow and feeble giving. Where are the modern Andrew Carnegies—the men who will do more than all their friends expect.²¹

An outstanding example of what private philanthropy can accomplish in medical education is Harvard's Francis A. Countway Library of Medicine. This prototype of a regional medical library was built in 1963–65, at a construction cost of over \$6.5 million, entirely with private resources. There were no federal funds available for library construction and private philanthropy had to pioneer on a large scale. The Rockefeller Foundation significantly exercised its "option" in this case and contributed \$1.5 million to the Library's construction endowment.

The private resources, however, *are* available. In 1965–66, the private sector of the economy contributed \$1.5 billion to higher education.²² The problem is whether a convincing case can be made to secure more of this support for medical schools or whether society should let medical education follow the path of nuclear physics and become a financial ward of the federal government.

Federal Support: The Great Debate

"Too many of us are acting still as if federal participation in the higher learning were still an uncertain experiment, instead of the stable and growing reality which it is." With these characteristically crisp remarks, McGeorge Bundy, reminded the American Council on Education in October, 1962, that less time should be spent "tilting at a windmill and more time spent trying to make the windmill that is federal aid catch and turn the wind to the university's purpose."²³

Although scholars and administrators observing the recent cuts in NIH aid might question Mr. Bundy's use of the adjective "stable," few people today in higher education doubt the "reality" of federal aid. University presidents and their businessmen trustees talk of attaining more equitable partnerships with the government, but no one talks seriously of going it alone. The hue and cry, indeed, is loudest when the federal grants are earmarked for someone else's university—witness, for example, the arguments about where the AEC should locate its new high-intensity accelerator.

The late President Griswold of Yale commented that higher education has always had its "patrons:" Colonial legislatures, Congregational and other churches, local and national governments, foundations and alumni. To him the issue was not *who* was the patron but whether the university could "teach its patrons that [it] cannot compromise its principles and must not be asked or pressed to do so."²⁴

The history of philanthropy in American higher education is that ultimately the patrons joined with university governing boards and their faculties in a partnership in which the universities managed to seize the controlling role. But there were many skirmishes and those universities strong enough to avoid dependence on any one donor (Harvard and Yale were singularly fortunate) and who insisted on Griswold's thesis that "in education the customer isn't always right . . . some get honors, others pass and others flunk,"²⁵ retained the most freedom.

One question with respect to federal support for medical education is what kind of a grade should be given to this "customer?" And for those many educators who note, as President Goheen and others have, that the government is generally buying services from the universities, government can best be defined as "a customer."

The consensus is that the government rates a passing grade in its support of medical education. Whether it eventually will qualify for "honors" is an open question.

Henry C. Meadow, associate dean for financial affairs of Harvard's Faculty of Medicine, has been actively involved in developing a viable partnership between Harvard and the federal government, especially the National Institutes of Health. In a 1962 article he traced the trend of the NIH away from its initial "disease-oriented" base to a broader support of medical science and manpower training and predicted the legislation would in time bring funds for research facilities and more institutional grants. But there were several deficiencies then, and not all of them have been resolved. Mr. Meadow's four major criticisms were:

1. Over-emphasis on research by NIH without concurrent support for teaching.
2. Failure on the part of Congress to allow the Public Health Service to pay total costs of research programs. "For every \$5 from the NIH

we must put up the sixth dollar." (In 1964-65 Harvard spent \$1.5 million from general income to meet indirect costs of federal grant projects.)

3. "The support is fragmented; individual members of the Faculty request funds for their particular interests. . . . Long term (institutional) planning is not easily possible in such a framework."
4. "The duration of any particular grant is short—long-term commitments cannot be based on mere assumptions of continuity."

Mr. Meadow concluded; "the net result of this outpouring has been good in spite of these problems . . . (but) the way to resolve these difficulties seems clear. The School must continue to be strong enough to provide, from hard resources the vital elements lacking in fragmented short-term support, a large enough core of permanent funds to enable us to plan for our own future as we see it, and to appoint and support within the permanent faculty those teachers and scholars of great attainments who will lead in the future."²⁶

The issue of planning one's own future has been critical regardless of the particular patron involved. In the instance of the federal government, one must recognize that the granting agencies must be responsive to the wishes of Congress which, in turn, reflect the public aspirations of the moment. Both the public and Congress were impressed by the spectacular success of the Manhattan project in World War II and have come to believe that heavily funded crash programs can solve any national problem. John M. Russell, President of the Markle Foundation says:

An example of this is found in the "crash programs" to solve health problems. (If you can hit the moon, you can prevent mental retardation, for example.) These are undertaken in deep seriousness, and in great earnestness and enthusiasm. They become the health crusades of the moment—now cancer or heart disease is popular, then mental health, and then back to the "killer diseases." Tremendous sums of money (the moon again!) are set up for these purposes. However, with these large sums at hand, it is precisely the seriousness, earnestness and enthusiasm of those controlling the grants that can play perfect havoc with the wider interests of the grantees.²⁷

Today there is the continuing problem of what Mr. Pusey calls the "perplexing" unwillingness of the government to pay its full costs to universities for contracts as it does to private industry. But the basic issue, as Mr. Pusey defines it, in evolving a sound partnership with the federal government remains not one of overhead costs or bureaucratic auditing*, but of institutional autonomy and the requisite ability to control its own destiny.

In his parting address to the Harvard Faculty of Medicine in 1965, Dr. George Packer Berry said: "Not to be minimized is the problem of the shifting allegiance of teaching scholars from their schools to the granting agencies." This fear partly motivates decanal pressures for more institutional grants. I would say parenthetically, however, that deans view this as a more serious problem than do many faculty members. Many of the latter belong to the group whom Robert Maynard Hutchins claims "prefer anarchy to any form of

*Harold Dodds, President *Emeritus* of Princeton, once remarked that anyone who thought the government should not audit professors' books was either, in the words of Cervantes, a knave or a fool.²⁸

government,” and prefer dealing with outside granting agencies and foundations rather than their own institutions. As the present Dean of the Harvard Medical School, Dr. Robert H. Ebert, told the 1965 meeting of the National Tuberculosis Association, some faculty members are “research entrepreneurs rather than dedicated investigators, and small empires are built which are more dedicated to quantity of work than to scholarship.”²⁹

The issue of faculty loyalties has been heightened by the granting process and the concurrent failure of the schools to provide their own resources for tenure. Despite Harvard’s own dramatic rise in full-time tenure posts from 62 in 1956–57 to 100 in 1966–67, the ratio of tenure posts to total full-time Faculty of Medicine appointments is 1 to 6.5 as opposed to 1 to 2 in Harvard’s Faculty of Arts and Sciences. This pattern, which is characteristic of other schools, raises the question whether or not medical faculties—to their detriment—have a disproportionately larger group of what many academicians consider “second class citizens” than other faculties.

Don K. Price, Dean of Harvard’s John F. Kennedy School of Government, in *The Scientific Estate* describes the high degree of autonomy that scientists have achieved because of the research fund granting process. He views fiscal controls by government as raising issues “of red tape not of the essential control of scientific strategy.” Dean Price further comments, “Many academic critics dislike the project system because it keeps the scientists busy begging government agencies for funds.” But, concludes Price, “the scientists themselves are typically cool to the idea of some university administrators that the government should give research funds to the universities and let their officers decide how to distribute them within their respective faculties.”³⁰

Institutional grants, which are increasing, may alleviate one problem and generate another, namely, the leveling process of “the Great Society.” This issue, noted by Harvard historian Donald R. Fleming, is becoming volatile. Wickliffe Rose, one of the leading early trustees of the Rockefeller Foundation, used to say “make the peaks higher” and then the valleys will fill in. The vogue in Washington now is to create “new centers of excellence.” The concept, as Fleming points out, is to raise the “second 20” universities to the level of the “top 20.” Whether there is enough talent in this academic world to achieve excellence everywhere at once, Professor Fleming considers questionable.

The “second twenty” universities are supposed to be raised to the level of the first twenty, rather than the latter reduced to the present condition of the second group. The leveling is to be upward. . . . Yet grave perils remain. . . . The President undoubtedly hopes to achieve a definite continentalizing of science and high culture with no sacrifice of quality. If he can make quality and equality march together in this fashion, he will have brought off one of the greatest achievements in American history. It is a big if. . . .³¹

I recall the half-facetious comments of one Yale professor when a major foundation grant to a western university resulted in the movement of much of his department to the Coast: “All they have done is to lower the academic water table in New Haven and raise it in San Francisco.”

The Ford Foundation’s \$200,000,000 program of matching grants to higher education between 1960–64 sought a

national raising of standards. Faculty “raiding” was perhaps an inevitable and relatively minor by-product. The efforts of Congress to raise national standards may prove less successful. The opportunities for political and academic logrolling are self-evident. For medical schools there are especially serious implications. The existing faculty shortage will encourage “raiding” of the major medical centers whose ability to replenish their own faculties will depend on their own financial health. Meanwhile, those schools currently operating at subsistence levels may find themselves impoverished by federal grants unless the overhead allowances are further increased. Only the well-to-do can afford federal grants under present terms.

Another issue, and one not predicted by many educational seers, was that federal grants to medical research would never ebb. Mr. Pusey did warn in 1959 that, “government expenditures are tied to annual budget requirements with the result that the wisest intentions are frustrated.”³² And so on Christmas Day of 1965, the *New York Times* reported that the NIH budget (among others) might be curtailed to balance the growing costs of the war in Vietnam. The threat of a cut-back for the NIH budget for fiscal year 1967 evoked harsh comment from *Times* columnist Howard A. Rusk, M. D.:

It is inconceivable that President Johnson who is primarily responsible for the great gains in the attack on death and disease, would give the indiscriminate axe treatment to the budget that is necessary for this continuing crusade.³³

The Dean of Boston University Medical School issued an equally sharp public retort to the possible cuts. Dr. Harry C. Solomon ’14, professor of psychiatry, *Emeritus*, and Massachusetts Commissioner of Mental Health, said the predicted budget restrictions “would set many mental health projects back 20 years.”³⁴

Medical researchers and educators fortunately were able to marshal effective political forces in 1966, and general cut-backs were averted. NIH appropriations for 1967 actually increased, although not dramatically, over the 1966 figures, and for 1968, the President requested even larger sums. But the assumption that federal funds for medical research would indefinitely increase at a geometric ratio was shattered. Only persistent efforts by medical educators and researchers and key members of Congress had rescued the NIH budget. But in November, 1967, President Johnson froze indefinitely all the National Institutes’ of Health funds appropriated for new construction and remodeling of health facilities. The death of Representative John E. Fogarty severely affects future legislation by taking out of the House one of the architects and chief supporters of the entire federal health program. Senator Lister Hill has done a remarkable job in leading the struggle for enlightened government aid, but unfortunately, he officially speaks only for the Senate. Maintaining federal support could be much more difficult with unsympathetic Congressional committee heads, or with a President who chose not to use the entire amount appropriated—both of which are possibilities in our political system.

Today private philanthropy is challenged not only to help preserve the “grand design” of medical education, but to provide stable funds at a time of uncertainty in the central government.

Those medical schools that have funded full-time tenure

with the expectation of continued federal grants may wish they had followed the prudence of Harvard, which, in its 1961 self-study, was able to report:

If federal funds were to be cut tomorrow Harvard would be able to honor its commitments to all its permanent Faculty members.³⁵

Although Harvard has subsequently experimented "cautiously" in accepting some federal career professorship awards, it has assured the incumbents that Harvard would provide funds should, for any reason, these awards be curtailed. What effect the current indicators of instability in federal financing may have on Harvard and other medical schools in supporting tenure faculty without private endowment is too early to ascertain.

Universities, especially their medical schools, are—in Mr. Pusey's words—"launched on a new course together."³⁶

In a large sense he spoke for his fellow educators throughout the country when he said:

We at Harvard are rooted in our nation and are proud to be . . . but we are fiercely determined not to be controlled by government, or to have our central activities finally directed by considerations, however important to government, which do not seem to us consistent with the university's basic, grand design."³⁷

If medical schools are to operate within any "basic, grand design," they need to do a better job of communicating their mission and requirements to private sources of support.

Medical schools are now being asked by faculty, students and administrators to re-examine their curricula to determine how they can help students grasp the ever-increasing scientific knowledge and how to re-examine the institutions to determine how they might better serve the community.

The government has studied and re-studied how to meet the "doctor shortage." But there has been little cohesive or coherent study made of how medical education has been, will be or should be financed. The financial growth of American medical education has been haphazard in both the private and public sectors. The race for sponsored programs has in many schools outstripped their capacity to cope with them. The poor schools have become relatively poorer and the affluent ones less stable. Perhaps this is because money historically has been somewhat distasteful a subject to the medical profession or because for many generations American universities believed that academic excellence required a Micawber-like pose of genteel poverty. (Granted it was only a pose, it still encumbered frank discussion of monetary problems.) During this same period there has evolved a fairly sudden marriage between government and medical schools that has allowed little chance for each partner to know or understand the other's problems. This same new partnership also has mistakenly led others, namely leading foundations, into thinking that they were no longer needed or wanted.

The economics of medical education, so long viewed in pieces, should now be viewed as a whole or medical schools will continue to be buffeted by financial crises.

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There is no specific due date for the receipt of applications or for the beginning date of Awards. The Committee will meet once a year in January to review all applications on file. Applicants will be notified of the decision of the Committee by January 31. The Committee may request candidates to present themselves for personal interviews.

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Moving Day, 1965

A Demonstration of Mutualistic Symbiosis

by Joseph Garland '19

THE importance of periodical medical literature to the medical librarianism of the day is enough in itself to create a firm bond between the editors who present the products of scientific conception and the librarians who have to file and even sometimes to retrieve the material.

In the biological ruminations to which physicians are addicted, they have been accustomed at times to consider the cozy concept of symbiosis—of living together—which can be good or bad. When in doubt about exact definitions I take a nip from Noah Webster's precise vade mecum, which I have always about me, as some persons carry a hip-pocket flask. According to Noah, symbiosis is "the living together in intimate association or even close union of two dissimilar organisms. In a broad sense the term includes parasitism, or antagonistic, or antipathetic, symbiosis, in which the association is disadvantageous or destructive to one of the organisms,

but ordinarily it is used in cases where the association is advantageous, or often necessary, to one or both, and not harmful to either." The partnership between the ivy and the wall would not qualify as a symbol of symbiosis, for an organism, according to Webster, is itself a living being; the Wall in "A Midsummer Night's Dream" might barely meet the requirements. Dorland contributes the term "mutualism" to identify a symbiosis that is of benefit to both partners, and we trust that this is our situation.

In regard to the journalistic side of the association, a brief note on the history of medical journalism in general, with only casual reference to Hippocrates, may be in order. Hippocrates, despite the excellence of the "Collection" ascribed to him and the various specialists constituting his group, was not a journalist.

Nicholas de Blegny was one, and his briefly glowing *Zodiacus Medicus Gallicus*, which appeared like a firefly in Paris late in the seventeenth century, is taken as the prototype of all medical journals. After all, some virtue must cling to antiquity, when even the distillers pick such brand names as Early Times, Ancient Age and Old Grandad.

De Blegny had started something; this first case was followed by a small epidemic breaking out in Holland, in Germany, in England, in France and in the course of time in North America, becoming pandemic and never subsiding. The first in North America—perhaps the subject of a tale too-often told, was *Mercurio Volante*, a weekly journal published in Mexico City that appeared like a flying saucer a century after de Blegny's hardy experiment, and remained in orbit for four months. The first bona fide journal to appear in the colonies, so far as I am aware, and I have tried not to be too accurate, which is stultifying, was the *New York Medical Repository*, which came into publication close to the end of the eighteenth century and had a remarkably sustained flight of twenty-seven years.

New England, whose granite underpinnings have resisted change since the most recent glacier gave them their permanent polish, has spawned a host of medical periodicals, all but a handful of which have ceased and desisted from publication. Since there is no particular virtue in reading all the labels in a columbarium the titles of only a few need be recalled as a matter of sentiment.

Thus, the *Medical and Agricultural Register*, "containing practical information on husbandry, cautions and directions for the preservation of health, management of the sick, etc.," appeared in Boston as a monthly in 1806 and barely lived a year. The *Annals of Phrenology* survived for three years during the 1830's; *The Boston Thomsonian Manual and Lady's Companion*, established soon after, held to its course for six years, when the ladies apparently seceded; it continued for two more years as *The Bostonian Thomsonian Manual*. Samuel Thomson, founder of the Thomsonian system, plied

his trade in Beverly where he cured his patients with steam and lobelia.

As time marched on the moving finger wrote still other names—*The Moral Reformer and Teacher on the Human Constitution*; *The Mesmeric Journal or Journal of Animal Magnetism* and *The Quarterly Homeopathic Journal*. The *New England Quarterly Journal of Medicine and Surgery*, established in 1843 and continuing in publication for less than two years, is distinguished for having contained Oliver Wendell Holmes's noted essay on "The Contagiousness of Puerperal Fever."

One of the earliest and most substantial and by all odds the most persistent of the journals that was bred in this unique section of North America was the quarterly *New England Journal of Medicine and Surgery and the Collateral Branches of Science*. Although its first issue appeared five months before the War of 1812 broke out, no relation between these events has ever been adduced—nor have I ever heard the possibility denied.

The *Journal* faithfully pursued its course for sixteen years during which time two other journalistic accouchements significant to the present thesis, took place, both in 1823. These blessed events, as the emotionally inclined would call them, brought into the world the *Lancet*, of London, delivered by the turbulent Thomas Wakley, who thrived on correcting the misapprehensions of others, and the *Boston Medical Intelligencer*; also a weekly publication. According to its founder and editor, world traveler, health officer and sometime mayor of Boston, Jerome V. C. Smith: "In the United States, where Science is described as the palladium of national prosperity, every attempt to diffuse truth meets with a cordial reception."

With these brave words Dr. Smith launched the *Intelligencer*, which continued in publication for five years. The *New England Journal*, having in its final year changed its name to the *New England Medical Review and Journal*, contracted to purchase the *Intelligencer* for \$600; the two joined together in weekly publication and thus the *Boston Medical and Surgical Journal* came into being. The last issue of the *Intelligencer* appeared on February 12, 1828 and the first number of the *Boston Medical and Surgical Journal* on February 19; thus the change was made without the drop of a syllable.

I need not particularize on the hundred years war that the *Boston Medical and Surgical Journal* waged in behalf of medical progress during its century of publication before its name was changed. Its volumes were carefully stored in the stacks of the Boston Medical Library and so far as I know came with it in the massive exodus of 1965 to the Countway Library complex, where they may today be consulted for the asking.

The editors and proprietors of the conjoined journals were John Collins Warren, John Ware and Walter Channing; the modest statement as the catamaran slid smoothly off the ways was that "the list of subscribers being now large, it will go forward in some shape or other; and efforts will not be wanting to make it useful." Subsequent issues carried the epochal papers on "Insensibility During Surgical Operations" by

The substance of this article was first given at the annual meeting of the Boston Medical Library on April 13, 1966.

Henry J. Bigelow, and "Inhalation of Ethereal Vapor, for the Prevention of Pain in Surgical Operations," by John Collins Warren, the actual operator. But for a real rundown of the *Journal's* important papers I refer you to Henry Viets's significant article on the subject that appeared at the time of the *Journal's* sesquicentennial celebration in 1962.

In 1914 the Massachusetts Medical Society and the *Journal*, which had been carrying on a mild flirtation for about a century, decided to go steady, and the *Journal* began publishing the proceedings of the Society and other matters pertaining to it. I suspect that by this maneuver the circulation received a needed shot in the brachial appendage, and a degree of optimism was generated in the proprietors. At any rate they forthwith announced that "in the future the *Journal* may become the most important medium of expression for scientific and clinical medicine in the East, and with courage and timeliness may serve the needs of the Community."

Long engagements are not recommended, but the Society and *Journal* were elderly and cautious and it was seven years before a final union was effected. Perhaps the idea of a romantic alliance may now be dropped for the *Journal* actually became the property of the Society in exchange for that famous dollar, which, according to representations of later date was never paid. If proof of the payment is lacking and anyone wishes to make an issue of it, the *Journal's* ownership may still be questioned.

It is a comfort to know that certain Yankee characteristics persisted. I well remember the matter of a postage stamp borrowed from the *Journal* by the Society's then treasurer. How he obtained it I don't know, for we were very careful about such things in those days, but he was regularly billed for it month after month and the debt was as regularly ignored, probably until it was outlawed. In other ways the new owners took quick advantage of their proprietary position. Being required to keep the books of its new chattel in balance the Society now began voting an annual appropriation "to make up the *Journal's* deficit." No mention was ever made of the obvious fact that the "deficit" resulted from the 5000 or so subscriptions that went to the membership without other payment, and which never amounted to more than \$3.00 or \$4.00 per member when the regular subscription rate was \$6.00. And this continued for about thirty years.

AT this point, since a demonstration of mutualistic symbiosis was my original intent, the Boston Medical Library should be brought into the picture. The Library was incubated in the rooms of the Medical Society at 36 Temple Place, under the joint care of Oliver Wendell Holmes, James R. Chadwick and Henry I. Bowditch. It broke from its shell in October, 1875, at 5 Hamilton Place, with Dr. Holmes as president, but was forced to move three years later, like Holmes's chambered nautilus, to more spacious quarters at 19 Boylston Place. (Never, until the summer of 1965, has the Library had its address on anything so commonplace as a street, and Shattuck Street has been permanently closed on the Countway's account.)

According to the recently published *Selected Papers of John Shaw Billings*, edited by Frank Bradway Rogers, former director of the National Medical Library; of the medical libraries in Boston in 1876, "the principal collection is that of the Boston Public Library, followed by that of the Boston

Athenaeum, the Boston Society for Medical Improvement and the Treadwell in the Massachusetts General Hospital." Fifth is that of Harvard University, "including the library of the medical school." Honorable mention goes to the then newly formed Boston Medical Library, which "gives promise of much usefulness."

Included in Roger's selection is a survey of the medical journals of the United States in 1879, recording the fact that the *Boston Medical and Surgical Journal* was then fifty years old and that, at the time of its initial publication, 8 medical journals were in existence in the United States.

As the nineteenth century was about to lower the curtain, which some still insist occurred at midnight on the last day of 1899—manifestly impossible as will be revealed if one counts back to the year 1, the Library moved into its new home on the edge of the Back Bay marshes at 8 Fenway—sometimes called "The" Fenway—a point on which even Mr. Webster has passed no judgment.

At the time of its taking over by the Society, Robert M. Green retired from the editorship of the *Journal* and was succeeded by Walter P. Bowers—"Uncle Walter" to his youthful associates—who reluctantly accepted the blue pencil. In a canny move on the part of both Uncle Walter and the Massachusetts General Hospital, in which neither entirely got the better of the other, the *Journal* in 1924 encompassed the Hospital's Cabot Case Records but was never able entirely to digest the bolus.

The next milestone of note was the dinner, in a February snowstorm, marking the *Journal's* hundredth anniversary under the name that it had held the longest. On that occasion the *B.M. & S.J.* passed into history in the manner of the phoenix, emblem of immortality, and the *New England Journal of Medicine* rose from the ashes under the incantations of no less than 7 after-dinner speakers.

In a letter from George W. Gay, read at the banquet, the Library's first president—a not infrequent contributor to the publication, was quoted:

Little of all we value here
Wakes on the morn of its hundredth year
Without both looking and feeling queer.
In fact, there is nothing that keeps its youth,
So far as I know, but a tree and truth.

Something less than four years later the *Journal*, having rolled around, gathering no moss, from one to another of 11 addresses since 1828, moved into the mansions prepared for it on the ground floor of the partially completed new wing of the Library. Here the then editor, like a pious Old Testament patriarch, was able to write, from his new sanctum, "Let us hope that these wanderings are over!"

Having long been idly intrigued, although never especially inspired, by the pseudo literary use of the term sanctum I consulted Webster on the matter, as a momentary diversion from my task of chronicling these events. Sanctum, I find, represents "a sacred place: hence a place of retreat, where one is free from intrusion" (to which I can only add, "Says who"). "The holy of holies, however; the most holy place, is the sanctum sanctorum: One's strictly private retreat"—not to be found in any editorial office of which I am aware.

Note also sanctuary, sanctify, sanctimonious and even sanction. "Brothers, we are treading where the saints have trod."

The ceiling of the ground floor of the Library's new wing, occupied by the *Journal* and the Society, was some 12 to 14 feet high, in contrast to any low-vaulted past about which Dr. Holmes might have written. Above it was the periodical room, eventually to become the Lahey Room, and a single low-ceiled floor of steel stacks. And there the money ran out. The rest of the structure was for many years a great cavity, as if a bomb had fallen through the roof; the walls lined by tier upon tier of wooden boxes packed with books. The space was eventually filled with six or seven floors of steel stacks during Dr. Arthur W. Allen's presidency, not too many years before the exodus; the center of the Countway, from sub-basement to the skylights around which the journalistic offices now cluster, consists of a still more terrifying emptiness, perhaps in an attempt to replicate that which had gone before.

In the then new sanctum at 8 Fenway, representing at last a more advanced stage in the process of developing a mutualistic symbiosis, Dr. Bowers, with the indispensable Clara Davies and a smattering of associates, held out through his eightieth birthday—a possibly enviable record, but one that few others would have the strength to emulate. Each afternoon he took the train home to Clinton, where he caught up on his practice during the evening, and each weekend carried with him for a careful personal perusal the page proofs of another oncoming issue.

Robert Nye, of my own vintage, trained as a bacteriologist and having been chosen by Francis Peabody as logistician of the Thorndike Memorial Laboratory, became an associate editor in 1936, with the succession in view, which took place in

the following year.

In respect to the mutualism of symbiosis, the *Journal* gave to the Library the fiscal benefits of its tenancy in the way of rent, it served as an outlet for various of the Library's reports; it channeled to the Library many of the books that came for review, and supplied it with a formidable number of exchange subscriptions. In return it has had always at hand the Library's most precious asset—the use of its facilities, especially for checking references.

This essential activity has been a constant and salutary reminder that increments to knowledge must be based on the labor and the experiences of the past—like the growth of coral, but not too much like it. Such an association, combined with my editorial duties, helped introduce me to the value of wordsmanship, which I never mastered but occasionally practiced with frequent and eager recourse to Noah Webster.

It has sometimes occurred to me, in this relation, although not often, for therein lies madness, to ponder on the number of words that rest dormant on the Countway shelves, and their power in concerted action if unleashed. I am not referring to them as if they were separate, unique, unrepeatable and unduplicated words—even Shakespeare had no such vocabulary—but as an astronomical total, including each individual "a" and "the," all of which are so carefully guarded that I have yet to learn the technic of borrowing a book either legally or otherwise, and getting it past the warder at the portcullis. I have made friends with him, but, Ralph Esterquest will be happy to know, his integrity still seems to be greater than mine.

A moving picture.



Since writing and, I assume, brooding over the writing of others maketh an exact man, the editor should constantly practice that wordmanship to which I have just alluded. It is related to semantics or the science of meanings, but being addicted to a more resonant philology, I prefer to call it semasiology, a synonym approved, if not preferred, by Webster. Words, after all, are the sparks that set the soul on fire, although they cannot compare to the sparks that we all have at our fingertips after crossing the Countway carpets on a frosty morning. These may sometime all too literally blow the stacks, and then where will our hoarded treasures be?

WORDSMANSHIP refers not only to dictionary definitions but to the general employment of words and their suitability for the functions that they are intended to perform—the making of them into phrases and sentences; their compression into abbreviations, their fusion into cryptic groups of initials and their expansion even to the explosive point of utter verbal fission.

According to an editorial that once appeared in the *Journal*, and which I can no longer find, the nautical suffix provides a case in point. It denotes state, condition or quality, as in friendship; office, dignity or profession, as in authorship or editorship; art or skill, as in wordmanship or swordsmanship. Fowler, as well as Webster, in his *Dictionary of Modern English Usage*, notes that the suffix has as its purpose to provide a concrete noun with an abstract meaning, as stated above, omitting such examples as gamesman, roundsman, brinksman, oneupman, and so forth, Fowler having departed this life, his work completed, before these examples of linguistic inventionship became abstract partners in the language.

In relation to the ubiquitous and almost totally unnecessary "relationship," relation stands by itself as an abstract noun without the suffix; doctors and patients can enjoy happy, mutually satisfactory and thoroughly decent relations without the necessity of displaying their seamanship by ship-ping together.

I must confess to a slight continuing confusion between librarianship and librarianism, and still encounter difficulty with "ism" which may variously express the "act or fact of doing, or an abnormal condition," as in conservatism and liberalism and perhaps alcoholism.

Some nine or ten years ago I was invited to a meeting in Boston of the Special Librarians Association and discovered that there were at that time 2489 special libraries with their special librarians employing a special type of librarianism, and goodness knows how many there may be now. My quiet inquiries failed to reveal how many of the 2489 were in the Biological Sciences Division, since the medical libraries and those pertaining to botany, zoology and the other life sciences were all mixed in with the Rustless Technical Library of the Armco Steel Corporation, the Library of the National Paint, Varnish and Lacquer Association and that of the Crane Corporation of Chicago, with its physiological implications.

Then, too, there is the Library of the National Cash Register Company, suggesting a happy medley of profitable jingles, and that of Procter and Gamble, with its collection, no doubt, of soap operas and works bearing on the practical aspects of floatability. I am reminded of a cartoon by my old friend Gluyas Williams, in his once famous series depicting crucial

moments in American industry, in which, before the entire horrified directorate of P and G, crouched in their cutaways and striped trousers around the marble testing pool, a cake of Ivory soap sank.

On another of those occasions with which my life seemed at one time to be filled, I was a guest, during the spring meetings, at a dinner in Atlantic City of the Medical and Metaphysical Society, a quaint and exclusive organization. But before going I scanned the leaves of Webster to acquaint myself a little better with this metaphysical business. It appears that metaphysics must first be disentangled from any spurious interpretations based on similarities that might cause it to be confused with metapsychic, metempsychosis, or metaphysis. Metaphysics is apparently that division of philosophy that is made up of ontology and epistemology, or cosmology. Ontology, not to be confused with odontology, is the science of being or reality, and epistemology, not to be confused with episiotomy, is obviously the theory or science of the method and grounds of knowledge, especially with reference to its limits and validity.

Further reflections on these matters, however, have raised certain doubts in my mind regarding the accuracy of some long accepted concepts. The physician, as we know, is a student and practitioner of physic, whereas the student of physics is recognized as a physicist. Why, then, is the authority on metaphysics defined as a metaphysician and not as a metaphysicist? Contrariwise, if metaphysician denotes the student of metaphysics, then it should follow that those who profess physics should be physicians, and the practitioners of physic should be physicists. "Honor the physicist" would be the correct Biblical injunction, and the familiar exhortation would be changed to "Physicist, heal thyself."

But life has become very puzzling and I shall end with a few lines that I found chiseled on the underside of a rock in Dogtown Common, on my native Cape Ann:

We're turning our attention, now, from studying the
phthysical,

To reckless relaxation while we probe the metaphysical,
Forsaking for the moment our investigations clinical
To think about theology and matters ecumenical.
Forgetting for tonight at least our feats in physiology
We contemplate and possibly apply epistemology.

For scientific subjects are pragmatic and too practical—
In substance too strategic and in theory too tactical—
When books are closed on fiscal days and evening finds
us pleasure bent

We simply turn our slide rules to a different sort of
measurement;

Released from dull librarianism and labors pedagogical
We find our brief distraction in the absolutely logical.

With apologies to Gilberts and to Sullivans in general
We've mastered all things animal and vegetable and
mineral;

We've pondered on ontology and lost our inhibitionism,
Like nucleary physicists with doctorates in fissionism.
We happy few have instincts, too, sex-linked though
hardly sectual—

When ardors rise—oh glad surprise—they're scarcely
intellectual.



EDITORIALS

Sleigh Bells Galore

Christmas, according to various sources of information such as the Encyclopedia Britannica, seems to have stirred no one's imagination before the fifth century A.D. It thus differed from the Jewish Festival of Lights, signifying the attainment of religious freedom and observed at about the same time of year, also with the giving of presents and the lighting of candles. Hanukkah goes back to more ancient times, celebrating the defeat of the Syrian conquerors by the Maccabees.

When attention was belatedly paid to the birthday of the Christian Savior it was placed on various days—in particular, January 6 and March 25, before December 25 was finally selected. The January and December dates presumably represented the time at about which the sun began its northward journey, and the end of March, even in the Dark Ages, heralded the start of Spring.

Of course no one had the foggiest notion of the actual date on which Christ was born, the Gregorian calendar not having been invented at the time, which is relatively unimportant; even the British monarch's birthday is celebrated when most convenient for all concerned.

Various customs still make up the fabric of the Christmas observance, some of the most picturesque being of pagan origin, with the evergreens of the northern forests constituting a general background. In Norse mythology, the red holly berries represent the blood of Balder, slain unknowingly by the god Höder with a shaft of mistletoe placed in his hand by the malevolent Loki. The mistletoe still bears as its fruit its tears, shed on that sad occasion.

And so, as time marches on, the birth of the Christian leader, respected by pious people of many faiths, has had secular observances attached to it in addition to its own unparalleled religious significance. However, an ultra modern sophisticated tendency to abandon an old fashioned although otherwise wholesome piety has tended also to denigrate whatever encourages a hopeful attitude toward any form of spiritual motivation. This seems to be unaccom-

panied by evidence of an acceptable substitute for that which seems almost essential in view of mankind's demonstrated need for some sort of faith to which to cleave.

Many of today's counterfeit crusaders, who, probably unwittingly, adopt a hirsute resemblance to Christ (although neglecting the traditional washing of the feet) constitute a cross to be borne, rather than providing any evidence of themselves bearing one. The oath of Islam, swearing by the beard of the prophet, is suggested, although any ecumenical significance is probably spurious.

Christmas, nevertheless, its season dawning anew if somewhat prematurely each year, is approaching its annual zenith, having gilded the horizons just after the World Series ended. Despite war and hatred and all forms of pestilential activity that indicate man's persistent inhumanity to man, all but the most egregious cynics experience some warming of the cockles (atrial and ventricular) of the heart when they begin to tangle with the tinsel.

So to all those who receive the *Bulletin* and even to other, less fortunate persons, a Merry Christmas and a Happy New Year!

Aut Scissors

Aut Nullus

The final number of the *Boston Medical Intelligencer*, published in February, 1828, (as noted elsewhere in these pages) contains an announcement of the impending appearance of the first issue of the *Boston Medical and Surgical Journal* "as a continuance of this paper." The retiring editors went on to say that considering the abundant resources available to the editors of the new publication "we cannot doubt that this paper will prove generally acceptable, because we feel an assurance that it must be interesting and useful."

They may have been whistling in the dark to keep up the courage of the newcomers; if so, some of their hopeful caution has been rubbed off onto the new administration of the *Bulletin*.

With little opportunity as yet to plan very far ahead, the new editor, grateful for the manuscripts bequeathed by his predecessor, is presenting in this early issue, in addition to a flagon or so of the customary Christmas spirit, certain material of

highly varied interest. This includes, as a second glance at the table of contents confirms, a description by its chief of the organization and activities of the Department of Pathology. Pathology seems to be less and less reminiscent of the doleful dirge—Bring out your dead—of the London Plague.

The relation between the historic medical libraries of Boston and Harvard and the *Journal* that has for over a century and a half chronicled the medical progress of the area is described, if not clarified; and Mr. Mason, assistant dean charged with fiscal resources has enlarged on the ominous dollar gap in medical education.

The continued and increased participation of the alumni is needed, however, if the *Bulletin*, after these forty years of increasingly adroit manipulation of its own non-fiscal resources is to keep up the high level of communication that has been established. Not only are pertinent original papers needed for studious consideration, in addition to those that are solicited, but moderately impertinent communications will be avidly read by the staff, whatever else happens to them—and more and more alumni notes will be welcomed.

The needless injunction to fish or cut bait reminds one of the ancient motto of *Life* magazine—Aut Scissors Aut Nullus—when *Life* was funny.

Well Healed

How comforting to know, during this season of goodwill towards men, that in Boston's hospitals house staff salaries have risen from what President Johnson considers a poverty level—\$3,200—to a figure closer to something known as a "median family income"—\$6,569.

Last May, the interns and residents of the Boston City Hospital held a well-publicized "heal-in" to dramatize the seriousness of their intent to receive a salary raise. And they were successful.

After four hectic days, with anguish, accusations and head-shaking from some quarters, and with superb organization and encouragement from the senior staff at the City Hospital and elsewhere, the Greater Boston Hospital Association agreed that "significant salary raises were justified."

This is now past history, and the 1967 intern will receive \$6,000 instead of \$3,600; and the first-year resident

\$6,600 instead of \$4,200, rising, after five years, to \$10,000 instead of \$7,500.

It has been said, "medical training is not what it used to be," and, "in my day, we were not allowed to get married until we had finished our training." But World War II, among other things, crushed that custom. For more than twenty years, while the cost of everything has sky-rocketed (particularly medical education and hospital costs), the low salaries for house staff, long

working hours, and total lack of inducements to close the widening physician shortage combined to create an extraordinarily poverty stricken group. A group who could look forward to carrying their enormous debts into middle life. But if poverty, like everything else, is a relative thing, or a state of mind, or a spur to lift those with guts out of the gutter, it is also an uncomfortable thing, and, one might say, there is no health in it.

It is, of course, the wives and families of the young doctors who best appreciate the large increase in salary. As one resident's wife said, "You can't imagine what it means to us; suddenly, we feel like civilized beings and not like beggars." That comment, concise and undramatic, contains a special and typical dignity of its own. It obliterates the years of struggling through medical school, internship, personal loneliness, and awesome inability to afford things.

ALONG THE PERIMETER

HMS Tuition Up

The Corporation of Harvard University announced in September a major tuition increase for Harvard Medical School and Harvard School of Dental Medicine. The tuition will be raised from \$2,000 to \$2,500 at the beginning of the 1968-69 academic year. This constitutes the fifth increase since 1960.

In announcing the Corporation's decision to the students, Dean Ebert said, "The costs of medical education at Harvard have been under continuous study. It is now apparent that income from all sources, including tuition, must be increased if the Medical School is to meet the rising costs of its educational programs and continue to maintain the highest standards."

Because of the higher tuition rates, larger funds must be made available for scholarships and loans. The Medical School will continue its policy of:

Selecting candidates for admission without regard to economic status and with the assurance that no student will have to withdraw for financial reasons,

Making it unnecessary for students to engage in non-medical employment during the academic year in order to meet educational expenses,

Keeping loan indebtedness at a reasonable level that will not interfere with the students' postdoctoral plans.

Dyscontrol Syndrome

Is there any connection between brain abnormalities in individuals and violent, anti-social behavior? No one

knows. But Vernon H. Mark, assistant clinical professor of surgery and director of the neurological services at Boston City Hospital, asserts that there is an urgent need to determine if any connection does exist.

In a recent (Sept. 27) issue of the *Journal of the American Medical Association*, Dr. Mark says that many persons whose behavior at times involves violent acts of aggression against their fellow man have been found to suffer from what he terms "Dyscontrol Syndrome." These persons "may have no additional symptoms of brain disorder other than an abnormal electroencephalogram or pneumoencephalogram."

Other persons have symptoms of brain dysfunction, which can be readily detected. These include speech and reading defects, memory impairment, seizures, hallucinations and mood disturbances. The complicating factor of this group is that signs of brain dysfunction may occur in many people who otherwise show no indication of violent behavior.

According to Dr. Mark, the real question is whether there is a relation between "thoroughly studied patients with focal brain disease and violent behavior, and the huge group of unstudied law violators guilty of assault, murder, manslaughter, rape and arson."

Today, the relation between focal neurological disease and law violators is unknown, but Dr. Mark believes, "... enough information has been accumulated to indicate that an intensive research and clinical study of individuals committing violence is in order; this is a matter of extreme urgency.

Third Ellis Lecture

The Third Laurence B. Ellis Lecture was given by John P. Shillingford '43B who spoke on "The Scientific Basis for the Treatment of Acute Myocardial Infarction." Dr. Shillingford is professor of angiocardiology at the Postgraduate Medical School and director of the Medical Research Council's cardiovascular research unit at Hammer-smith Hospital in London.

During the lecture, Dr. Shillingford reviewed the many investigations of the clinical and physiologic effects of acute myocardial infarction which he and his associates have been pursuing in a one-bed special study unit established at the Hospital in 1963. He told of their use of anti-arrhythmic drugs, especially lidocaine, which has led to a 10 percent reduction in the mortality of acute myocardial infarction.

He went on to describe the dangerous syndrome of hypotension and bradycardia, which is often precipitated by the upright posture or by administration of morphine. The syndrome responds to elevation of the legs and the administration of atropine, the latter pointing to the syndrome's vaso-vagal nature.

Dr. Shillingford's current work is concerned with the pathophysiology of the failure of the damaged heart as a pump.

The Ellis Lectureship was established by students, patients and friends of Laurence B. Ellis '26, who for many years has been physician-in-charge of the electrocardiographic laboratory at Boston City Hospital. Dr. Ellis is clinical professor of medicine at HMS.



Senator Kennedy Speaks on Vietnam Casualties

An unusual event occurred at HMS in Amphitheater D on October 25, 1967. Before a packed audience, TV cameras, and press people, Senator Edward M. Kennedy delivered what his office termed "a major policy address." Afterwards, with Howard H. Hiatt '48, as moderator, and John H. Knowles, M.D., and Frank R. Ervin, M.D., as panelists, a discussion ensued and questions from the floor were answered.

The program, coordinated by Frank F. Davidoff, M.D., was sponsored by an independent group of people in the Boston area who are interested in medical problems in Vietnam.

Senator Kennedy said:

"We meet tonight in a school of medicine to talk about the conduct of war. But we do not meet in the usual sense, for while we are concerned for the well-being and safety of those who fight the war, we meet because of an equal concern for the civilians living in the fire of war—those who are not armed, not belligerents, not fighting against us, and significantly not fighting for us.

"This concern, common as it may be to the humanitarian motives of men of medicine, is novel to the rest of us in a time of all-out war. Our current involvement in Southeast Asia, however, is such that civilian concerns, I believe, are directly linked to the success of our national effort."

Senator Kennedy then described the genesis of U.S. involvement in Vietnam and continued:

"We abandoned our position of assistance and, I believe, our reliance on

the long-run benefits of political action. We fell into all-out war. So it is today that the war we fight is little different from all other wars in history, despite the fact that we knew, and still know, that the real crisis of Vietnam calls for solutions, approaches and techniques of warfare different from those produced by all ways of the past . . .

"Nowhere has our failure been more clear than in the civilian medical arena. The testimony of experts has been all too clear: Hundreds of South Vietnamese wounded, today lie in sheds, corridors, floors, sometimes even in open courtyards, awaiting surgery that may be delayed a year or longer.

"One doctor described an experience last April at Da Nang Civilian Hospital. He found fifty civilians, children and adults, lying on the floor; little children crowded into one room, all with kerosene, fire and other burns of war; people with second and third degree burns, many of them dying. There was insufficient personnel, insufficient equipment and insufficient medicines to care for the casualties. . . .

"Not one of the provincial or major hospitals servicing the people meets even the barest minimum of sanitation or other support conditions with which to carry out simple medical practices. To Du Maternity Hospital, the main teaching facility for the University of Saigon for obstetrics and gynecology, has conditions of unbelievable filth and neglect—there is no place for 400 women to even wash their hands; showers are used as toilets; three to four women crowded with their babies in filthy beds pushed together at night; rats stalk the corridors; newspapers are used for diapers, drugs for pain almost unavailable.

"We were told that there are currently 35,000 amputees awaiting prosthetic devices and currently only a few hundred being produced each month.

"No real means has been worked out for getting the war injured patients to hospitals. Most often they come in carts, sampans or on foot.

"There are 43 provincial hospitals in Vietnam. Not one is considered up to minimum standards for a developing country in Southeast Asia. Almost all lack sanitation facilities, drinking water, dependable electrical systems.

"The great tragedy of all this is that most or all of these shocking and deplorable conditions need not exist."

Senator Kennedy noted that the amount of money allotted by the United States for civilian medical programs in Vietnam in one year equals the amount we allot for one-half-day's military efforts—\$37 million. He outlined six recommendations for meeting current needs in Vietnam, based on testimony before his Subcommittee on Refugees. They include the construction of civilian hospitals, improving existing hospitals, the assignment of aircraft for the exclusive use of AID teams, inoculation and immunization programs, and the enlargement of the role played by the private medical sector in the United States in providing surgical teams in South Vietnam.

In connection with the latter recommendation, Senator Kennedy said he has had active discussions with the Massachusetts General Hospital and a number of other groups in the U.S. to provide surgical teams for South Vietnam.

Senator Kennedy concluded by saying: "I cannot say that the significant elevation of medical programs alone would be a turning point in the war. Vietnam is far too difficult for that. But a greater priority in this area would be in keeping with the finest traditions of our nation and the highest ethics of the medical profession."

Hope for Hemophiliacs

If normal spleens can be transplanted successfully, it may be possible to control and cure hemophilia. John C. Norman '54, associate in surgery at HMS and director of the cardiovascular research division of the Sears Laboratory at Boston City Hospital, made this proposal at the annual meeting of the American College of Surgeons.

Dr. Norman's research points to the spleen as the production site of the antihemophilic factor, Factor VIII, in the body. Factor VIII, he said, either is released from the normal spleen or from a splenic storage area stimulated by a substance circulating in the plasma of hemophiliacs.

The investigations undertaken by Dr. Norman and his colleagues involved a series of isolated organ perfusions using fresh pig spleens from which all blood had been removed. The spleens were perfused in a sterile system with both pig and human blood, including blood deficient in Factor VIII donated by hemophiliac patients.

Countway—There She Stands

Still unknown to many other than the great and growing number of its users and those who are not yet aware that they can no longer drive through Shattuck Street to Huntington Avenue, the Countway Library stands squarely on the path of progress like the famous lighthouse of Pharos. In the two-and-a-half years since its opening it has been serving an increasing horde of readers with increasing effectiveness, considering the times.

When one enters its only available door it has become necessary to show an identification card indicating one's type of academic citizenship, or otherwise to demonstrate special privilege, seriousness of purpose or other evidence of good will. Since libraries continue to be preyed upon by the unscrupulous, one must pass a guard and satchel inspector on the way out. As Henry David Thoreau once noted, life isn't as simple as it was before the war between the states.

Changes, additions and improvements are part of the continuing process of settling in. Thus, a special committee of the trustees of the Boston Medical Library has been working on a special fund for a special purpose, and already, as a result of its activities, two portraits of distinguished physicians who have played major roles in the recent history of the Boston Medical Library have been completed and were unveiled on November 15, with simple but suitable ceremonies. They are

likenesses of the late Walter G. Phippen '04, past president of the Library, whose obituary appears elsewhere in this issue of the *Bulletin*, and Henry R. Viets '16, its long-time librarian and curator before the move across the Fenway, and now consultant to the Countway's historical collections.

A reading alcove on the second floor has been dedicated to Dr. Olive Watkins Smith, recently retired as assistant professor of biological chemistry in the department of obstetrics and gynecology at the Boston Hospital for Women, Parkway Division. This tribute stems from an anonymous gift made to the B.M.L. As the result of a fund raised some time ago in memory of Francis T. Hunter '24, to provide a suitable "museum" area in the old building, and never implemented because of the contemplated move, a free-standing exhibit case has been constructed and installed on the second floor as a prototype, it is intended, for more to come. The two old cases that long stood in the entrance hall of the old Library across the Fenway have been placed in the fifth-floor portrait-gallery. Purchased with the honorarium that Dr. Osler received for delivering the Ingersoll Lecture on Immortality in 1904 and graciously turned over to the Library, they will at last be suitably marked.

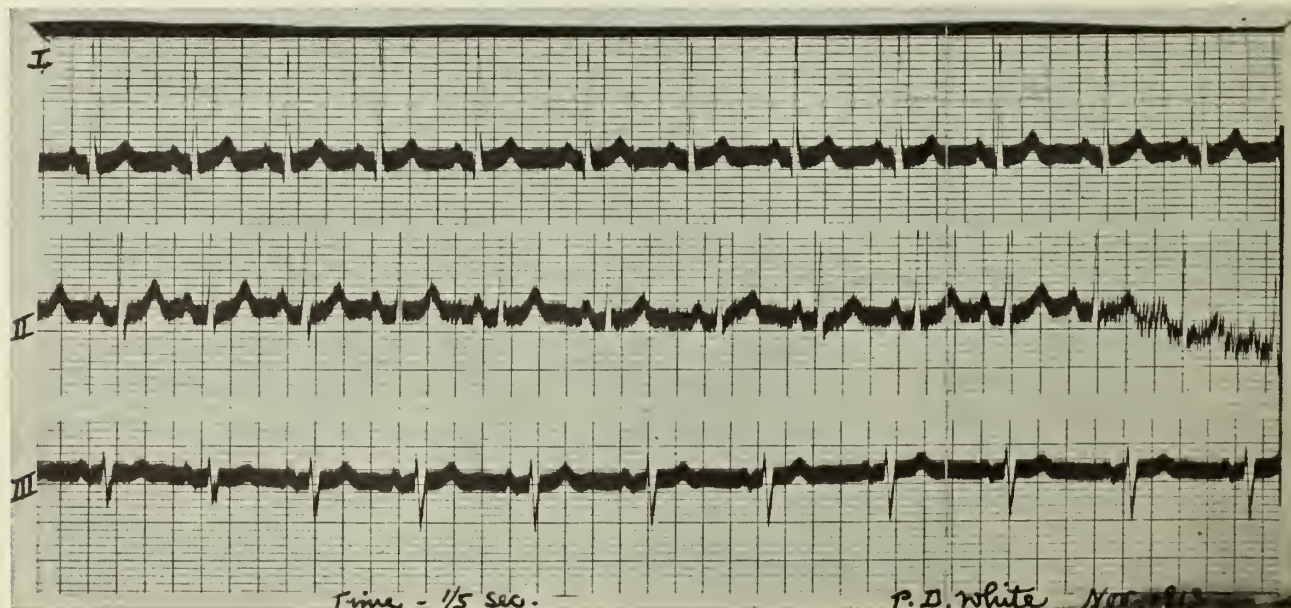
A bust of Frank H. Lahey '04 has been placed by his former associates in the room dedicated to him, and a bas

relief of former Dean George P. Berry, (of plaster as of this writing) has been installed on the entrance floor. This will be transformed, by some curious process of alchemy, into bronze.

A small collection of Harvard-owned books has, since the opening of the Library, been put on reserve by the Harvard Medical Faculty, for course reading by Harvard students. Legitimate and even reasonable as this sequestration may appear, it has created an atmosphere of class distinction unwelcome to the students of the other schools to whom the Countway is open, regardless of whether they may have membership in the Boston Medical Library—the usual avenue of approach to the Countway by non-Harvard users. To restore, if not a balance of power, at least something that resembles one, the librarians of the medical schools of Boston and Tufts universities have purchased additional copies of heavily used books and deposited them at the Countway for the exclusive use of their own students. "A small thing," as some sage remarked, "but mine own." They are unavailable to the Crimson cohorts.

Already designated as a Medlars-based literature-searching agency (with no relation to search and destroy—a military objective) the Countway has been named at Bethesda as the New England Regional Medical Library. As such, under a grant from the United States Public Health Service, channeled through the National Library of Medicine, "it serves as the reservoir, resource library making its collections and services available to institutions

Electrocardiogram (actual size) of Dr. White taken in Nov., 1913 in the London Laboratory of Sir Thomas Lewis.



and individuals in the region." Those based within a half mile of the building who can reach it within perhaps five minutes on foot at a smart trot must operate on a no cash but carry basis.

Ralph Esterquest, incidentally, indefatigable librarian of the Countway and its guiding genius since its inception, has been tapped by the American Library Association to spend a sabbatical year studying the ways and means of establishing libraries in foreign lands, especially those to the south of these parts. His duties have been adequately, if temporarily, assumed by Harold Bloomquist, assistant librarian, aided by Charles C. Colby, associate librarian for Boston Medical Library Services.

A final item on the Countway's expanding list of activities relates to "The Countway Library Associates: Friends of the Rare Books Collections," of whom some thirty "Founding Members" met at an inaugural dinner in the Auditorium on February 28 under the presidency of Lloyd E. Hawes '37, to commune and hear William Dameshek '23, now of New York City, tell about his adventures as a collector. At a second meeting on September 27, Paul Dudley White '11, spoke on "Historical Notes of a Medical Bibliophile," illustrated with slides made from his collection of books which was given to the Library some years ago, and portions of which were then on exhibition. Dr. White was, as usual, interesting, calm and unhurried, although about to take off for Madrid to deliver the Servetus Lecture.

The place in the Countway complex of the Boston Medical Library, with its rich traditions, its invaluable collections and its independent if relatively modest financial resources, has been the subject of much discussion, and, on the part of its own membership, of some anxiety lest it be swallowed by its better fleshed mate. The decision to join Harvard was not only sensible, it was inevitable, for the old Library could not compete with the colossus that was building. In fact, the union has resulted in the largest and most impressively useful medical library in the hemisphere, short of Bethesda, and the purpose of all associated with it is to see that its two arms shall function together in complete accord and without loss of the Boston Medical Library's individual identity.

Dr. Russell Speaks Out

The state of the science of biological alteration of the immunological response remains "clumsy and dangerous," although the surgical art of organ transplantation in the treatment of disease has advanced rapidly in recent years.

So stated Paul S. Russell, John Homans Professor of Surgery at HMS and chief of the general surgical services at Massachusetts General Hospital, during the first American Urological Association Lecture presented at the annual meeting of the American College of Surgeons.

Present methods of immunosuppression lay the patient open for infection since they involve non-specific lowering of the body's defenses to all invaders. "The real obstacle to successful transplantation in a genetically heterogenous population," he said, "is the immune reaction of the transplanted organ."

Before any treatment can be successful, and before any help can be extended to the estimated 15,000 patients in the U.S. who could be helped each year by kidney transplants, Dr. Russell emphasized, there must be an adequate supply of kidneys available for transplantation. He called for professional support of state legislation which would "make the wish of an individual to donate organs, expressed during life, binding upon his heirs."

Turning to the search for ways of altering the rejection mechanism in the recipients of organ transplants, Dr. Russell discussed the research now being conducted in his laboratory at MGH. The research involved the immunosuppressive effect afforded by anti-sera made by injecting lymphoid cells of the recipient animal species into animals of another species. When administered following the removal of the thymus gland, the action of the anti-sera is greatly enhanced. Skin transplants in animals so treated have survived for over 12 months.

At the MGH and elsewhere, concluded Dr. Russell, scientists must continue to work toward what is believed to be the ultimate answer to the success of organ transplantation—the attenuation in the responsiveness of an adult recipient to just those foreign antigens which would be present at a later transplant.

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Tears without grief

Crying Spells—psychic tension with depressive symptoms?

"I don't know what's the matter with me lately...I cry and I cry... and I really don't know why I do."

A woman often is not conscious of the real reasons for her crying spells or refuses to admit them to herself. On probing, you may find that frequent weeping, like insomnia or neurotic fatigue, often is an expression of psychic tension. She needs sympathy and reassurance, and perhaps a calming agent to help her over her crisis. Consider prescribing Valium (diazepam) for her. It usually reestablishes calmness promptly. Crying spells and other secondary depressive symptoms normally subside as the tension is relieved. Your patient then can cope more easily with stresses to which she is subjected. Valium (diazepam) is generally well tolerated, and on proper maintenance dosage usually does not impair mental acuity or ability to function. If side effects such as ataxia and drowsiness occur, they usually disappear with dosage adjustment. Before prescribing, please consult complete product information, a summary of which follows:



Contraindications: Infants, patients with history of convulsive disorders, glaucoma or known hypersensitivity to drug.

Warning: Not of value in the treatment of psychotic patients, and should not be employed in lieu of appropriate treatment.

Precautions: Limit dosage to smallest effective amount in elderly or debilitated patients (not more than 1 mg, one or two times daily initially) to preclude ataxia or oversedation, increasing gradually as

needed or tolerated. As is true of all CNS-acting drugs, until correct maintenance dosage is established, advise patients against possibly hazardous procedures requiring complete mental alertness or physical coordination. Driving during therapy not recommended. In general, concurrent use with other psychotropic agents is not recommended. If such combination therapy is used, carefully consider individual pharmacologic effects—particularly with known compounds which may potentiate action of Valium (diazepam), such as phenothiazines, barbiturates, MAO inhibitors and other antidepressants. Advise patients against simultaneous ingestion of alcohol or other CNS depressants. Safe use in pregnancy not established. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Observe usual precautions in impaired renal or hepatic function. Periodic blood counts and liver function tests advisable in long-term use. Cease therapy gradually.

Side Effects: Side effects (usually dose-related) are fatigue, drowsiness and ataxia. Also reported: mild nausea, dizziness, blurred vision, diplopia, headache, incontinence, slurred speech, tremor and skin rash; paradoxical reactions (excitement, depression, stimulation, sleep disturbances, acute hyperexcited states, hallucinations); changes in EEG patterns during and after drug treatment. Abrupt cessation after prolonged overdosage may produce withdrawal symptoms (convulsions, tremor, abdominal and muscle cramps, vomiting, sweating) similar to those seen with barbiturates, meprobamate and chlordiazepoxide HCl.

Dosage: *Adults:* Mild to moderate psychoneurotic reactions, 2 to 5 mg b.i.d. or t.i.d.; severe psychoneurotic reactions, 5 to 10 mg t.i.d. or q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; muscle spasm with cerebral palsy or athetosis, 2 to 10 mg t.i.d. or q.i.d. *Geriatric patients:* 1 or 2 mg/day initially, increase gradually as needed and tolerated. (See Precautions.)

Supplied: Valium® (diazepam) Tablets, 2 mg, 5 mg and 10 mg; bottles of 50 and 500.

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